

[illegible]

Figure 1 consists of 12 bar charts, labeled (a) through (l), each representing a different variable. The y-axis for all charts is 'Percentage' ranging from 0 to 100. The x-axis for each chart lists four categories: 'All respondents', 'Non-voters', 'Voters', and 'Abstainers'. The data is as follows:

- (a) Age: 18-24 (15%, 10%, 12%, 8%), 25-34 (25%, 20%, 22%, 15%), 35-44 (30%, 25%, 28%, 20%), 45-54 (20%, 15%, 18%, 12%), 55-64 (10%, 8%, 10%, 5%), 65+ (5%, 3%, 5%, 2%).
- (b) Sex: Male (55%, 50%, 58%, 45%), Female (45%, 50%, 42%, 55%).
- (c) Education: Less than high school (10%, 15%, 8%, 20%), High school (30%, 25%, 35%, 15%), Some college (25%, 20%, 22%, 10%), College (35%, 30%, 32%, 55%), Postgraduate (10%, 5%, 5%, 0%).
- (d) Income: Less than \$10,000 (15%, 20%, 12%, 25%), \$10,000-\$19,999 (25%, 20%, 22%, 15%), \$20,000-\$29,999 (20%, 15%, 18%, 10%), \$30,000-\$39,999 (15%, 10%, 12%, 5%), \$40,000-\$49,999 (10%, 5%, 8%, 2%), \$50,000 or more (15%, 30%, 20%, 43%).
- (e) Employment: Full-time (45%, 40%, 48%, 35%), Part-time (25%, 20%, 22%, 15%), Unemployed (30%, 40%, 30%, 50%).
- (f) Religion: Protestant (55%, 50%, 58%, 45%), Catholic (35%, 40%, 32%, 55%), Jewish (5%, 5%, 8%, 0%), Muslim (2%, 2%, 3%, 0%), Other (1%, 1%, 1%, 0%).
- (g) Political affiliation: Democrat (55%, 50%, 58%, 45%), Republican (40%, 45%, 38%, 55%), Independent (5%, 5%, 4%, 0%).
- (h) Party affiliation: Democrat (55%, 50%, 58%, 45%), Republican (40%, 45%, 38%, 55%), Independent (5%, 5%, 4%, 0%).
- (i) Party identification: Democrat (55%, 50%, 58%, 45%), Republican (40%, 45%, 38%, 55%), Independent (5%, 5%, 4%, 0%).
- (j) Party loyalty: Democrat (55%, 50%, 58%, 45%), Republican (40%, 45%, 38%, 55%), Independent (5%, 5%, 4%, 0%).
- (k) Party support: Democrat (55%, 50%, 58%, 45%), Republican (40%, 45%, 38%, 55%), Independent (5%, 5%, 4%, 0%).
- (l) Party preference: Democrat (55%, 50%, 58%, 45%), Republican (40%, 45%, 38%, 55%), Independent (5%, 5%, 4%, 0%).

Pass 1: The first pass for each letter assigns the normal sound for that letter

Pass 2:

When two of the same consonants appear side by side, only one is heard.

Example: "berry"

Pass 3:

'ch' = /ch/, phoneme #19

Example: cherry

Pass 4:

When the letters 'ght' are together, 'g' and 'h' are silent.

Example: 'night'

Pass 5:

The letter 'g' makes a soft sound before the letters 'e' and 'i'.

Example: "gem"

Pass 6:

The letter 'c' makes a soft sound before the letters 'e' and 'i'.

Example: "cent"

Pass 7:

When a word ends in 'ck', it has the /k/ sound.

Example: "sick"

Pass 8:

When a word begins with 'kn', the letter 'k' is silent.

Example: "know"

Pass 9:

When a word begins with 'wr', the letter 'w' is silent.

Example: "write"

Pass 10:

Words having a double 'e', usually have the long 'e' sound.

Example: "feet"

Passes 11 & 12:

The letter 'r' changes the quality of the preceding vowel.

Example: "burn"

Pass 13:

When the letter 'y' is the final vowel in a word, it usually has a vowel sound.

Example: "why"

Pass 14:

In 'ay', the 'y' is silent and gives 'a' its long sound.

Example: "play"

Pass 15:

If the only vowel is the final letter, it usually represents its long vowel sound.

Example: 'me'

Pass 16:

When the letter 'i' is followed by the letters 'gh', the 'i' is long and the 'g' and 'h' are silent.

Example: 'sigh'

Pass 17:

When two 'o's are next to each other, they represent the phoneme #43.

Example: 'moon'

Pass 18:

When the letters 'e' and 'w' are next to each other, they represent the phoneme #43.

Example: 'dew'

Pass 19:

When there is a 'u' followed by a consonant and an 'e', the 'u' represents the phoneme #43.

Example: 'dude'

Pass 20:

When the letters 'o' and 'u' are next to each other (in the form 'ou'), they represent the phoneme #42.

Example: 'proud'

Pass 21:

When the letter 'n' is directly preceded by 'g', the 'g' is silent.

Example: 'gnu'

Pass 22:

When the letter 'y' is directly preceded by 'o', they represent the phoneme #41.

Example: 'boy'

Pass 23:

When the letter 'h' is directly preceded by the letter 'w', they represent the phoneme #24.

Example: 'who'

Pass 24:

Silent 'e' - makes the preceding vowel long (when there is a consonant between the two).

Example: "name"

Pass 25:

When a word ends in 'ed', the preceding vowel represents its long vowel sound.

Example:

Pass 26:

When a word ends in 'es', the preceding vowel represents its long vowel sound.

Example:

Pass 27:

When a word ends in 'er', the preceding vowel represents its long vowel sound.

Example:

Pass 28:

When the letter 'u' is directly preceded by 'q', the 'q' represents phoneme #7 (/k/) and the 'u' represents the phoneme #16 (/w/).

Example: 'quilt'

Pass 29:

When the letter 'p' is directly followed by the letter 'h', they represent phoneme #3 (/f/).

Example: 'phonics'

Pass 30:

When the letter 'n' is directly followed by the letter 'g', the 'n' represents phoneme #25 and the 'g' is silent. *Note, this needs to be changed in the code.

Example: 'phonics'

Pass 31:

When the letter 's' is directly followed by the letter 'h', they represent the phoneme #20.

Example: 'shut'

Pass 32:

When the letter 't' is directly followed by the letter 'h', they represent the phoneme #22.

Example: 'the'

Pass 33:

When the letter 'a' is directly followed by the letter 'w', they represent the phoneme #40.

Example: 'draw'

Pass 34:

When the letter 'a' is directly followed by the letter 'i', they represent the phoneme #26.

Example: 'paid'

Pass 35:

When the letter 'o' is directly followed by the letter 'a', they represent the phoneme #29.

Example: 'boat'

Pass 36:

When the letter 'e' is directly followed by the letter 'a', they represent the phoneme #27.

Example: 'pea'

Pass 37:

When the letters 'ould' appear in this order, they represent the phoneme sequence 44, 44, 0, 2

Example: 'could'

Pass 38:

When the letters 'tion' appear in this order, they represent the phoneme sequence 20, 20, 36, 10

Example: 'nation'

Pass 39:

When the letters 'sion' appear in this order, they represent the phoneme sequence 20, 20, 36, 10

Example: 'tension'

Pass 40:

When there are two 'c's followed by 'e' or 'i', the first 'c' represents a hard sound (/k/), and the second 'c' represents a soft sound (/s/).

Example: 'success'

Pass 41:

When the letter 'o' is directly followed by the letter 'i', they represent the phoneme #41.

Example: 'foil'

Pass 42:

When 's' is the last letter in a word, it represents the sound /z/.

Example: 'faces'

Pass 43:

When the letters 'tch' appear in this order, the 't' is silent.

Neurospora confiducia

Example: 'itch'

Pass 44:

When the letters 'r' or 'k' are directly followed by 'h', the 'h' is silent.

Example: 'rhino'

Pass 45:

When the letter 'm' is directly followed by the letter 'b', the 'b' is silent.

Example: 'lamb'

Pass 46:

When the letters 'k' or 'm' are directly preceded by the letter 'l', the 'l' is silent.

Example: 'talk', 'calm'

Pass 47:

When the letter 'b' is directly followed by the letter 't' at the end of a word, the 'b' is silent.

Example: 'debt'

Pass 48:

When the letter 'm' is directly followed by the letter 'n', the 'n' is silent.

Example: 'hymn'

Pass 49:

When an 'h' is the last letter of a word and is directly preceded by a vowel, the 'h' is silent.

Example: '

Pass 50:

When the string of letters 'who' are at the beginning of a word, the 'w' is silent.

Example: 'who'

Pass 100:

When the letter 'd' is directly followed by the letter 'g' or the letter 'j', the 'd' is silent.

Example: 'judge', 'adjust'

Pass 101:

When the letter 's' is directly followed by the letter 'm' at the end of a word, the 's' has a /z/ sound.

Example: 'chasm'

APPENDIX B

1000-1000-1000

```

/vpass1 {
    0 1    wlen {
        /x exch def
        workingvword 1 get
        x
        Alphabet word x get get
        /snorm get
        put
        workingvword 2 get
        x 1 x bitshift put
    } for
} def

// double consonants
/vpass2 {
    /prev '.' def
    0 1    wlen {
        /x exch def
        word x get prev eq {
            x x 1 sub light2gether
        } if
        /prev word x get def
    } for
} def

// ch
/vpass3 {
    /prev '.' def
    0 1    wlen {
        /x exch def
        word x get 'h' eq prev 'c' eq and {
            x x 1 sub light2gether
            "19" x soundlikethis
            "19" x 1 sub soundlikethis
        } if
        /prev word x get def
    } for
} def

// ght
/vpass4 {
    2 1    wlen {
        /x exch def
        word x get 't' eq {
            word x 1 sub get 'h' eq
            word x 2 sub get 'g' eq

```



```

                                and {
                                    x x 1 sub x 2 sub light3gether
                                    "0" x 1 sub soundlikethis
                                    "0" x 2 sub soundlikethis
                                } if
                            } if
                        } for
                    } def

                        // soft 'g'
/vpass5 {
    0 1    wlen 1 sub {
            /x exch def
            word x get 'g' eq {
                word x 1 add get 'i' eq
                word x 1 add get 'e' eq
                or {
                    x x 1 add lightthistoo
                    "6" x soundlikethis
                } if
            } if
        } for
    } def

                        // soft 'c'
/vpass6 {
    0 1    wlen 1 sub {
            /x exch def
            word x get 'c' eq {
                word x 1 add get 'i' eq
                word x 1 add get 'e' eq
                or {
                    x x 1 add lightthistoo
                    "13" x soundlikethis
                } if
            } if
        } if
    } for
} def

                        // 'ck' at the end
/vpass7 {
    word wlen 2 sub get 'c' eq {
        word wlen 1 sub get 'k' eq {
            wlen 2 sub wlen 1 sub light2gether
            "7" wlen 2 sub soundlikethis
        }
    }
}

```

```

                                "7" wlen 1 sub soundlikethis
                        } if
                } if
        } def

                // 'kn' at the beginning
/vpass8 {
        word 0 get 'k' eq {
                word 1 get 'n' eq {
                        0 1 lightthistoo
                        "0" 0 soundlikethis
                } if
        } if
} def

                // 'wr' at the beginning
/vpass9 {
        word 0 get 'w' eq {
                word 1 get 'r' eq {
                        0 1 lightthistoo
                        "0" 0 soundlikethis
                } if
        } if
} def

                // double e
/vpass10 {
        /prev '.' def
        0 1 wlen {
                /x exch def
                word x get 'e' eq prev 'e' eq and {
                        x x 1 sub light2gether
                        "27" x soundlikethis
                        "27" x 1 sub soundlikethis
                } if
                /prev word x get def
        } for
} def

                // vowel preceeds 'r'
/vpass11 {
        1 1 wlen {
                /x exch def
                word x get 'r' eq {

```

```

word x 1 sub get 'i' eq {
    "38" x soundlikethis
    "38" x 1 sub soundlikethis
    x 1 sub x lightthistoo
} if
word x 1 sub get 'u' eq {
    "38" x soundlikethis
    "38" x 1 sub soundlikethis
    x 1 sub x lightthistoo
} if
word x 1 sub get 'e' eq {
    "38" x soundlikethis
    "38" x 1 sub soundlikethis
    x 1 sub x lightthistoo
} if
word x 1 sub get 'a' eq {
    "39" x soundlikethis
    "39" x 1 sub soundlikethis
    x 1 sub x lightthistoo
} if
word x 1 sub get 'o' eq {
    "48" x soundlikethis
    "48" x 1 sub soundlikethis
    x 1 sub x lightthistoo
} if
} if
/prev word x get def
} for
} def

/vpass12 {
    1 1 wlen 1 sub {
        /x exch def
        word x get 'r' eq word x 1 add get 'e' eq and {
            word x 1 sub get 'a' eq {
                // the 'a'
                "37" x 1 sub soundlikethis
                x 1 sub x lightthistoo
                x 1 sub x 1 add lightthistoo
                // the 'e'
                "0" x 1 add soundlikethis
                x 1 add x 1 sub lightthistoo
            } if
            word x 1 sub get 'o' eq {
                "48" x 1 sub soundlikethis

```

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x 1 sub x lightthistoo
x 1 sub x 1 add lightthistoo
// the 'e'
"0" x 1 add soundlikethis
x 1 add x 1 sub lightthistoo
    } if
  } if
/prev word x get def
} for
} def

```

```

/vpass13 {
    word when 1 sub get 'y' eq {
        countvowels 0 eq {
            "28" when 1 sub soundlikethis

        }{
            "27" when 1 sub soundlikethis
        }
    }
}

```

```

    } ifelse
  } if
} def

```

```

/vpass14 {
    1 1    wlen {
/x exch def
word x get 'y' eq {
    word x 1 sub get 'a' eq {
        "26" x 1 sub soundlikethis
        "0" x soundlikethis
        x x 1 sub light2gether
    }
}
}
}

```

```

} def
  } for
    } if
      } if

```

```

/vpass15 {
    countvowels 1 eq {
        /pos wlen 1 sub def
        /letter word wlen 1 sub get def
        letter 'e' eq {
            "27" pos soundlikethis
        } if
        letter 'i' eq {
            "28" pos soundlikethis
        } if
    }
}

```

```

    } if
    letter 'o' eq {
        "29" pos soundlikethis
    } if
} if
} def

/vpass16 {
    2 1    wlen {
        /x exch def
        word x get 'h' eq word x 1 sub get 'g' eq and {
            word x 2 sub get 'i' eq {
                "0" x soundlikethis
                "0" x 1 sub soundlikethis
                "28" x 2 sub soundlikethis
                x x 1 sub x 2 sub light3gether
            } if
        } if
    } for
} def

    // double o
/vpass17 {
    /prev '.' def
    0 1    wlen {
        /x exch def
        word x get 'o' eq prev 'o' eq and {
            x x 1 sub light2gether
            "43" x soundlikethis
            "43" x 1 sub soundlikethis
        } if
        /prev word x get def
    } for
} def

    // ew
/vpass18 {
    1 1    wlen {
        /x exch def
        word x get 'w' eq word x 1 sub get 'e' eq and {
            x x 1 sub light2gether
            "43" x soundlikethis
            "43" x 1 sub soundlikethis
        } if
    } for
} def

```



```

letter 'o' eq {
    "29" x soundlikethis
    wlen 1 sub x light2gether
} if
letter 'u' eq {
    "43" x soundlikethis
    wlen 1 sub x light2gether
} if
} for
} if
} if
} def

// ed
/vpass25 {
    word wlen 1 sub get 'd' eq word wlen 2 sub get 'e' eq and {
        countvowels 2 eq {
            word wlen 3 sub get isconsonant {
                "0" wlen 2 sub soundlikethis // e silent
                0 1 wlen 3 sub {
                    /x exch def
                    /letter word x get def
                    letter 'a' eq {
                        "26" x soundlikethis
                        wlen 2 sub x light2gether
                    } if
                    letter 'e' eq {
                        "27" x soundlikethis
                        wlen 2 sub x light2gether
                    } if
                    letter 'i' eq {
                        "28" x soundlikethis
                        wlen 2 sub x light2gether
                    } if
                    letter 'o' eq {
                        "29" x soundlikethis
                        wlen 2 sub x light2gether
                    } if
                    letter 'u' eq {
                        "43" x soundlikethis
                        wlen 2 sub x light2gether
                    } if
                } for
            } if
        } if
    } if
} def

```

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```

    } if
  } if
} def

// es
/vpass26 {
  word wlen 1 sub get 's' eq word wlen 2 sub get 'e' eq and {
    countvowels 2 eq {
      word wlen 3 sub get isconsonant {
        "0" wlen 2 sub soundlikethis // e silent
        0 1 wlen 3 sub {
          /x exch def
          /letter word x get def
          letter 'a' eq {
            "26" x soundlikethis
            wlen 2 sub x light2gether
          } if
          letter 'e' eq {
            "27" x soundlikethis
            wlen 2 sub x light2gether
          } if
          letter 'i' eq {
            "28" x soundlikethis
            wlen 2 sub x light2gether
          } if
          letter 'o' eq {
            "29" x soundlikethis
            wlen 2 sub x light2gether
          } if
          letter 'u' eq {
            "43" x soundlikethis
            wlen 2 sub x light2gether
          } if
        } if
      } for
    } if
  } if
} def

```

```

// er
/vpass27 {
  word wlen 1 sub get 'r' eq word wlen 2 sub get 'e' eq and {
    countvowels 2 eq {
      word wlen 3 sub get isconsonant {
        "38" wlen 1 sub soundlikethis //
      }
    }
  }
}

```

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} def

} def


```

    } for
} def

// ould
/vpass37 {
    0 1    wlen 3 sub {
        /x exch def
        word x get 'o' eq word x 1 add get 'u' eq and {
            word x 2 add get 'l' eq word x 3 add get 'd' eq and {
                x x 1 add light2gether
                "44" x soundlikethis
                "44" x 1 add soundlikethis
                "0" x 2 add soundlikethis
                x 2 add x lightthistoo
                x 2 add x 1 add lightthistoo
                x 2 add x 3 add lightthistoo
            } if
        } if
    } for
} def

// tion
/vpass38 {
    0 1    wlen 3 sub {
        /x exch def
        word x get 't' eq word x 1 add get 'i' eq and {
            word x 2 add get 'o' eq word x 3 add get 'n' eq and {
                "20" x soundlikethis
                "20" x 1 add soundlikethis
                "36" x 2 add soundlikethis
                x x 1 add x 2 add light3gether
                x x 3 add lightthistoo
                x 1 add x 3 add lightthistoo
                x 3 add x 3 add lightthistoo
            } if
        } if
    } for
} def

// sion
/vpass39 {
    0 1    wlen 3 sub {
        /x exch def
        word x get 's' eq word x 1 add get 'i' eq and {
            word x 2 add get 'o' eq word x 3 add get 'n' eq and {

```

```

        "20" x soundlikethis
        "20" x 1 add soundlikethis
        "36" x 2 add soundlikethis
        x x 1 add x 2 add light3gether
        x x 3 add lightthistoo
        x 1 add x 3 add lightthistoo
        x 3 add x 3 add lightthistoo
    } if
} if
} for
} def

    // cc[ei]
/vpass40 {
    0 1    wlen 2 sub {
        /x exch def
        word x get 'c' eq word x 1 add get 'c' eq and {
            word x 2 add get 'e' eq
            word x 2 add get 'i' eq and {
                "7" x soundlikethis
                "13" x 1 add soundlikethis
                x x 1 add light2gether
                x x 2 add lightthistoo
                x 1 add x 2 add lightthistoo
            } if
        } if
    } for
} def

    // oi
/vpass41 {
    0 1    wlen 1 sub {
        /x exch def
        word x get 'o' eq
        word x 1 add get 'i' eq and {
            x wlen 3 sub ge {                // if there can't be an 'ng'
                "41" x soundlikethis
                "41" x 1 add soundlikethis
                x x 1 add light2gether
            }{
                // not n == false, not g == false
                word x 2 add get 'n' ne
                word x 3 add get 'g' ne or {
                    "41" x soundlikethis
                    "41" x 1 add soundlikethis
                }
            }
        }
    }
}

```

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```

                                x x 1 add light2gether
                                } if
                                } ifelse
                                } if
                                } for
                                } def

                                // s at end
/vpass42 {
    word wlen 1 sub get 's' eq
    wlen 2 ge and {
        wlen 2 sub getthissound isvoiced {
            "18" wlen 1 sub soundlikethis

        } {
            wlen 3 ge {
                wlen 2 sub getthissound issilent {
                    wlen 3 sub getthissound isvoiced {
                        "18" wlen 1 sub soundlikethis
                    } if
                } if
            } if
        } ifelse
    } if
} def

                                // tch
/vpass43 {
    2 1    wlen {
        /x exch def
        word x get 'h' eq {
            word x 1 sub get 'c' eq
            word x 2 sub get 't' eq
            and {
                "0" x 2 sub soundlikethis
                x 2 sub x 1 sub lighththistoo
                x 2 sub x lighththistoo
            } if
        } if
    } for
} def

                                // rh - kh
/vpass44 {
```

```

1 1    wlen {
      /x exch def
      word x get 'h' eq {
        word x 1 sub get 'r' eq
        word x 1 sub get 'k' eq or {
          "0" x soundlikethis
          x x 1 sub lighththistoo
        } if
      } if
    } for
  } def

```

```

      // mb
/vpass45 {
  1 1    wlen {
        /x exch def
        word x get 'b' eq {
          word x 1 sub get 'm' eq {
            "0" x soundlikethis
            x x 1 sub lighththistoo
          } if
        } if
      } for
    } def

```

```

      // lk - lm
/vpass46 {
  0 1    wlen 1 sub {
        /x exch def
        word x get 'l' eq {
          word x 1 add get 'm' eq
          word x 1 add get 'k' eq or {
            "0" x soundlikethis
            x x 1 add lighththistoo
          } if
        } if
      } for
    } def

```

```

      // bt at the end
/vpass47 {
  word wlen 1 sub get 't' eq
  word wlen 2 sub get 'b' eq and {

```



```

        "0" wlen 2 sub soundlikethis
        wlen 2 sub wlen 1 sub lightthistoo
    } if
} def

// mn
/vpass48 {
    0 1 wlen 1 sub {
        /x exch def
        word x get 'm' eq {
            word x 1 add get 'n' eq {
                "0" x 1 add soundlikethis
                x 1 add x lightthistoo
            } if
        } if
    } for
} def

```

```

// vowel h at end
/vpass49 {
    word wlen 1 sub get 'h' eq {
        word wlen 2 sub get isvowel {
            "0" wlen 1 sub soundlikethis
            wlen 1 sub wlen 2 sub lightthistoo
        } if
    } if
} def

```

```

// 'who' at beginning of word (must fix up wh rule)
/vpass50 {
    wlen 3 ge {
        word 0 get 'w' eq {
            word 1 get 'h' eq
            word 2 get 'o' eq and {
                "0" 0 soundlikethis
                "5" 1 soundlikethis // h back to before wh rule
                0 1 lightthistoo
                0 2 lightthistoo
            } if
        } if
    } if
} def

```

```

// d - j sound
/vpass100 {

```

```

0 1    wlen 1 sub {
        /x exch def
        word x get 'd' eq {
            x 1 add getthissound "6" eq {
                "0" x soundlikethis
                x x 1 add lightthistoo
            } if
        } if
    } for
} def

// ? sm
/vpass101 {
    1 1    wlen 1 sub {
            /x exch def
            word x get 's' eq word x 1 add get 'm' eq and {
                x 1 sub getthissound isvoiced {
                    "18" x soundlikethis
                    x x 1 add lightthistoo
                    x x 1 sub lightthistoo
                } if
            } if
        } for
    } def

/lastpass {
    workingvword 2 get {
        itoa hex
    } foreach
} def

/light2gether {
    /x1 exch def
    /x2 exch def
    /lights workingvword 2 get def
    lights x1 lights x1 get 1 x2 bitshift or put
    lights x2 lights x2 get 1 x1 bitshift or put
} def

/light3gether {
    /x3 exch def

```

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/x2 exch def
/x1 exch def
/lights workingvword 2 get def
lights x1 lights x1 get 1 x2 bitshift or put
lights x1 lights x1 get 1 x3 bitshift or put
lights x2 lights x2 get 1 x1 bitshift or put
lights x2 lights x2 get 1 x3 bitshift or put
lights x3 lights x3 get 1 x1 bitshift or put
lights x3 lights x3 get 1 x2 bitshift or put
} def

```

```

/lighthistoo {
  /x2 exch def
  /x1 exch def
  /lights workingvword 2 get def
  lights x1 lights x1 get 1 x2 bitshift or put
} def

```

```

/soundlikethis {
  /x1 exch def
  /xs exch def
  /sounds workingvword 1 get def
  sounds x1 xs put
} def

```

```

/getthissound {
  workingvword 1 get exch get
} def

```

```

/countvowels {
  0
  word {
    /x exch def
    x 'a' eq
    x 'e' eq or
    x 'i' eq or
    x 'o' eq or
    x 'u' eq or
    {
      1 add
    } if
  } forall
} def

```

405020 42903250

```
/vowels "aeiou" def
```

```
/isvowel {  
  /l exch def  
  false  
  vowels {  
    l eq or  
  } forall  
} def
```

```
/consonants "bcdfghjklmnpqrstvwxyz" def
```

```
/isconsonant {  
  /l exch def  
  false  
  consonants {  
    l eq or  
  } forall  
} def
```

```
/voiced [ "1" "2" "4" "6" "8" "9" "10" "12" "15" "16" "17" "18" "21" "23" "25" "26" "27" "28" "29"  
"30" "31" "32" "33" "34" "35" "36" "37" "38" "39" "40" "41" "42" "43" "44" ] def
```

```
/isvoiced {  
  /ss exch def  
  false  
  voiced {  
    ss eq or  
  } forall  
} def
```

```
/issilent {  
  "0" eq  
} def
```

```
/dumpword {  
  dup 0 get print  
  dup 1 get { cvs ", " cat prin } forall  
  "" print  
  dup 2 get { cvs ", " cat prin } forall  
  "" print  
  3 get print
```

[illegible]

FIGURE 16-303603

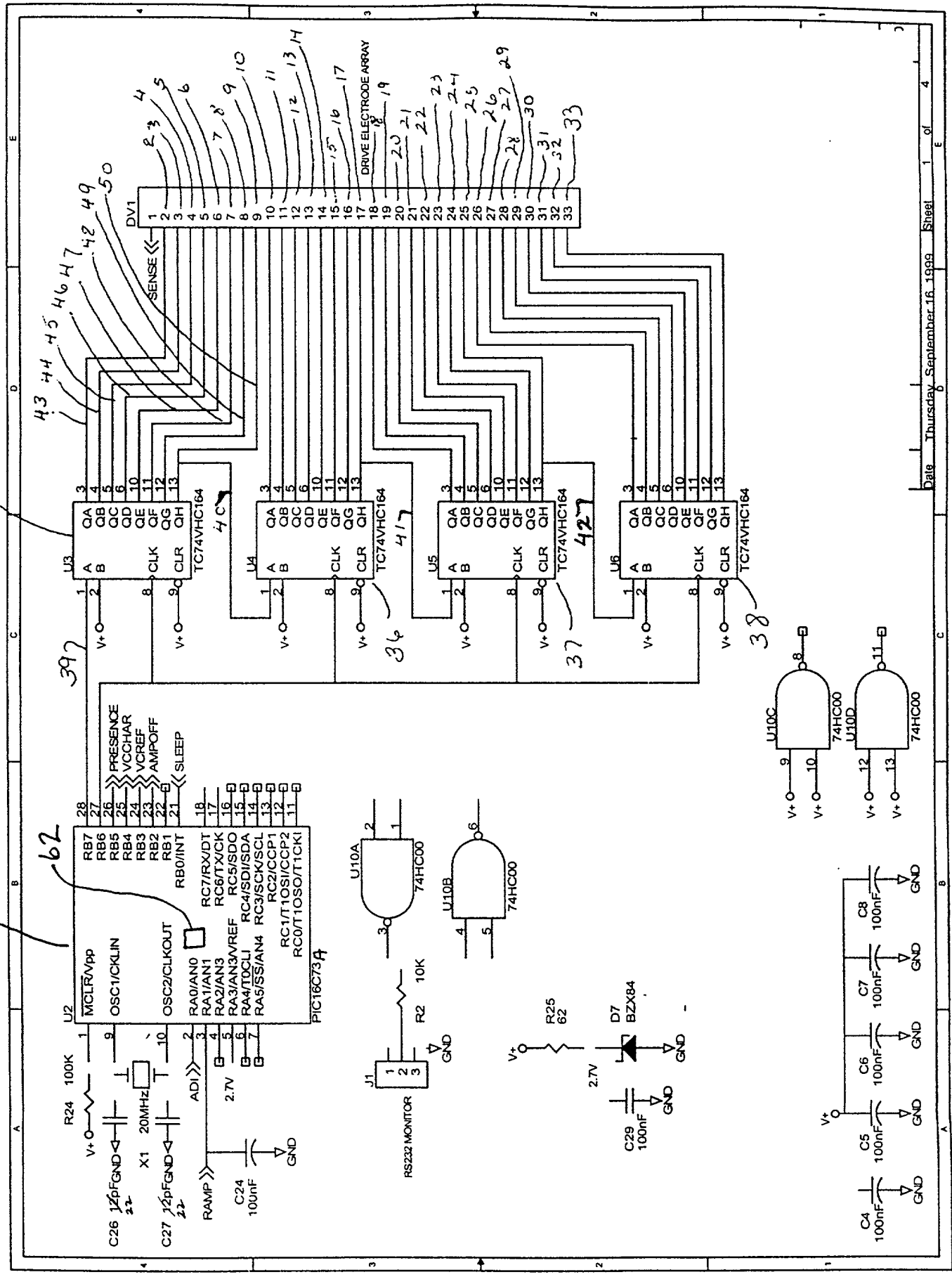


FIG. 2

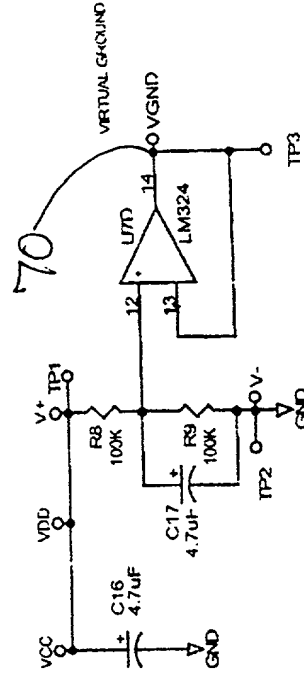
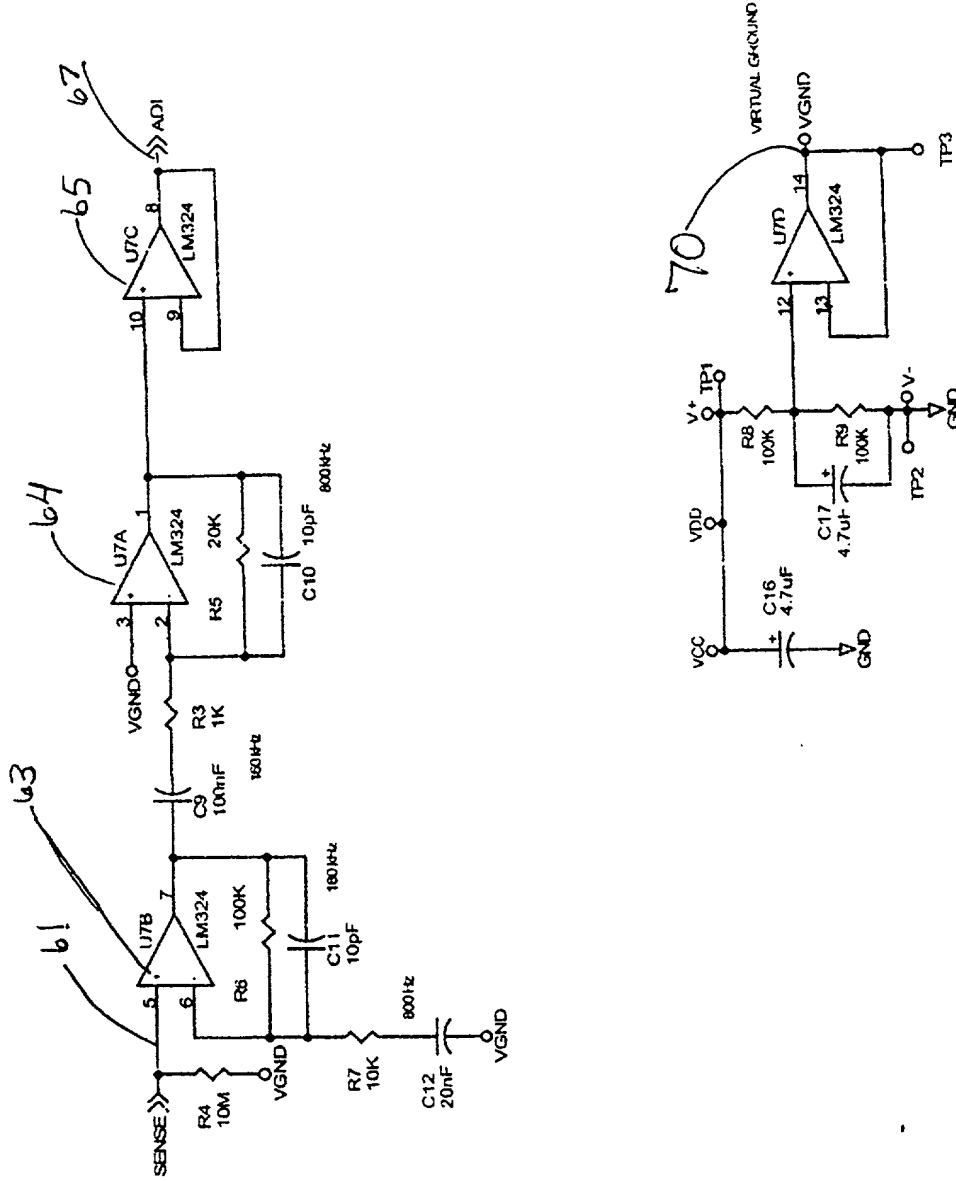


FIG. 3

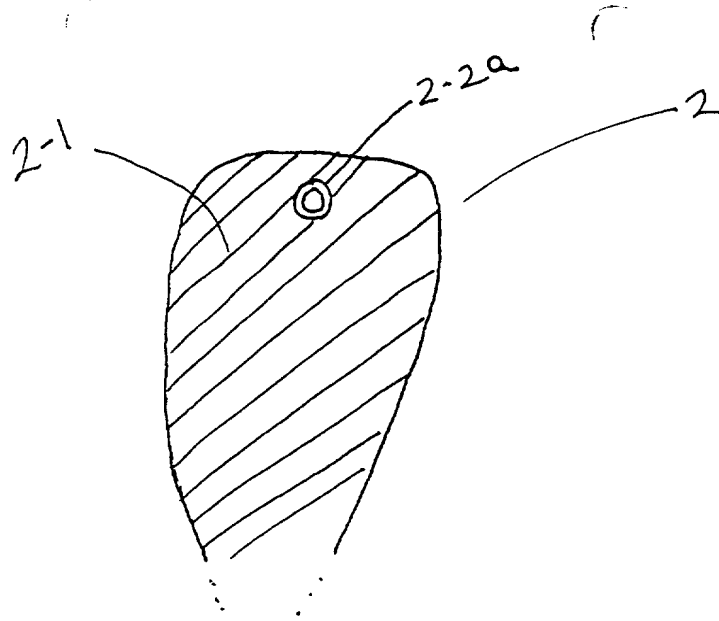


FIG. 4a

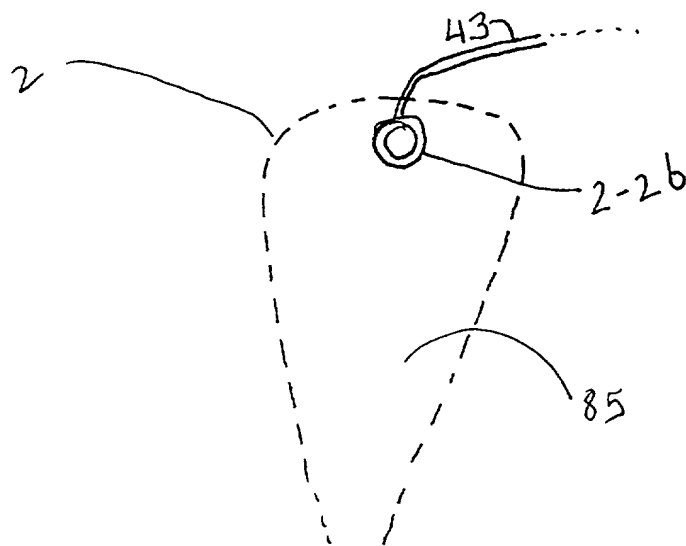


FIG. 4b

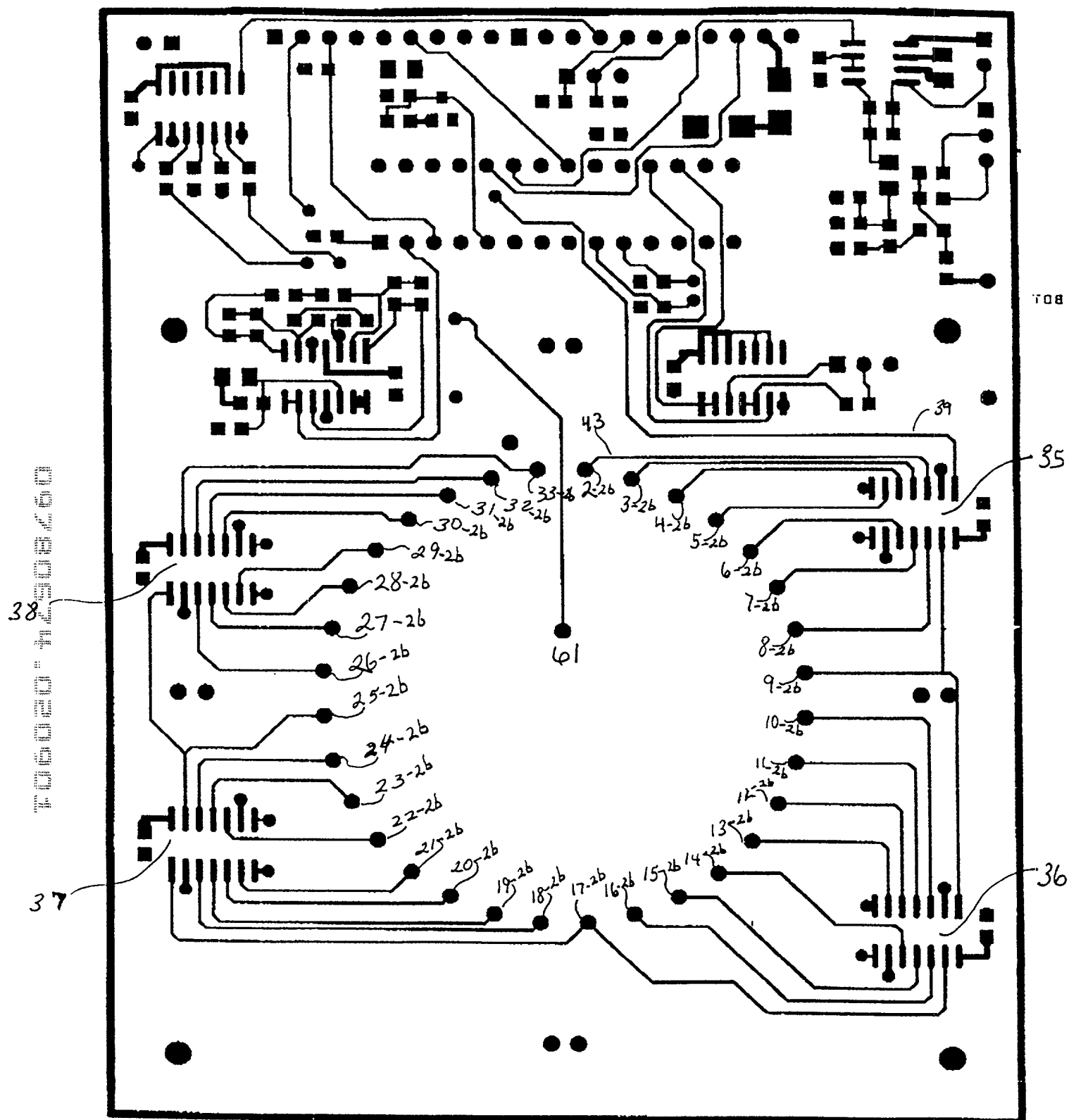
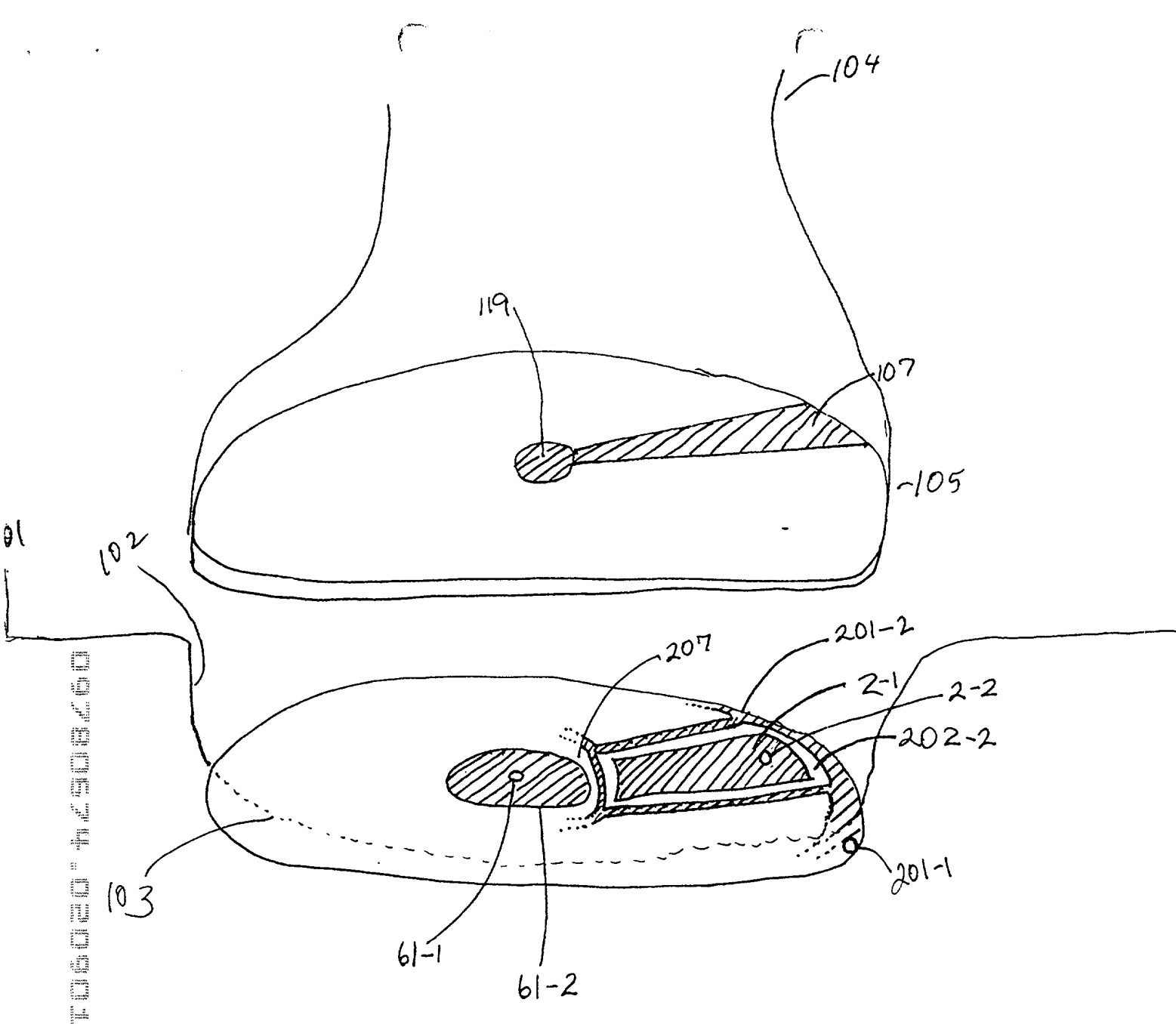


FIG. 6



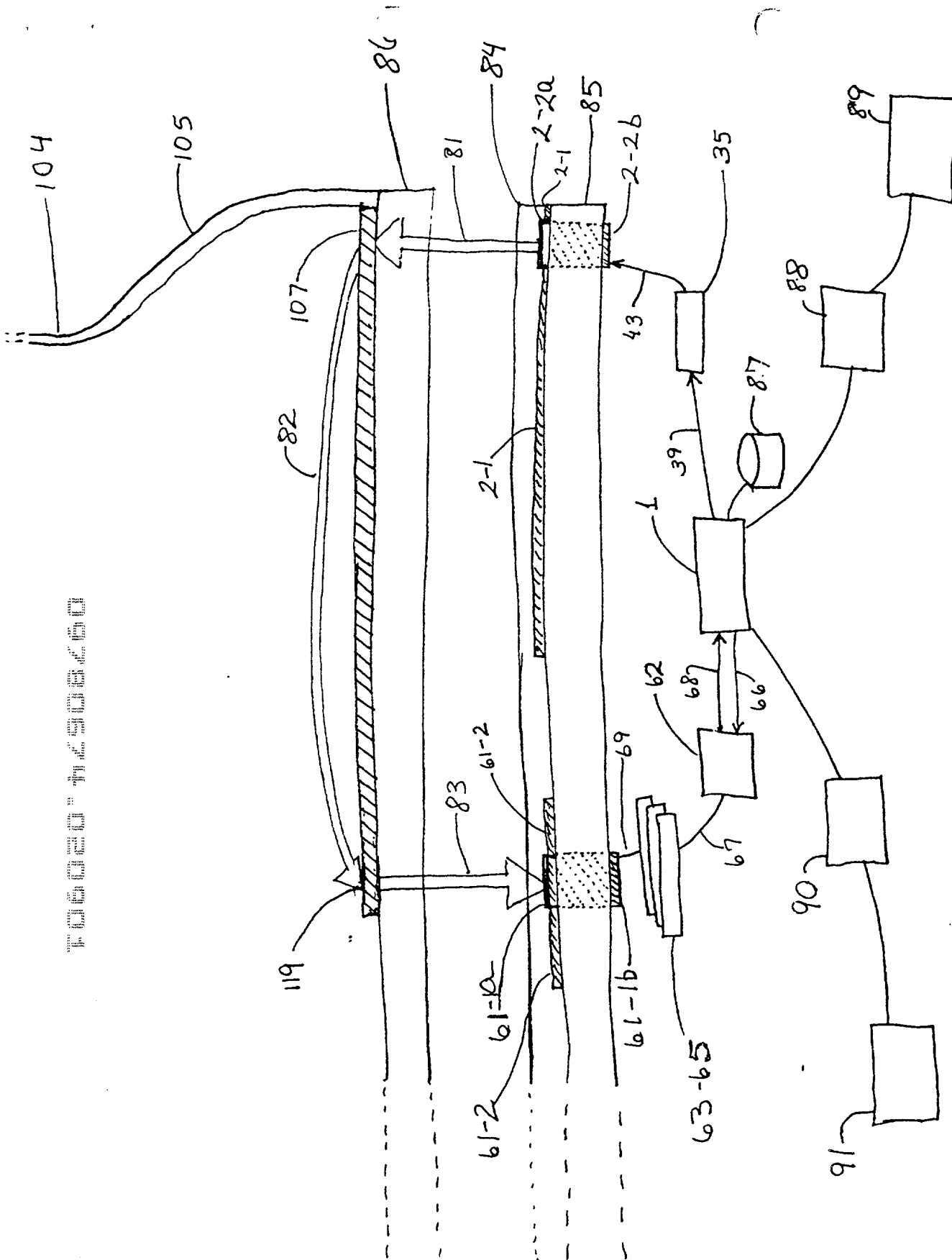


Fig. 12

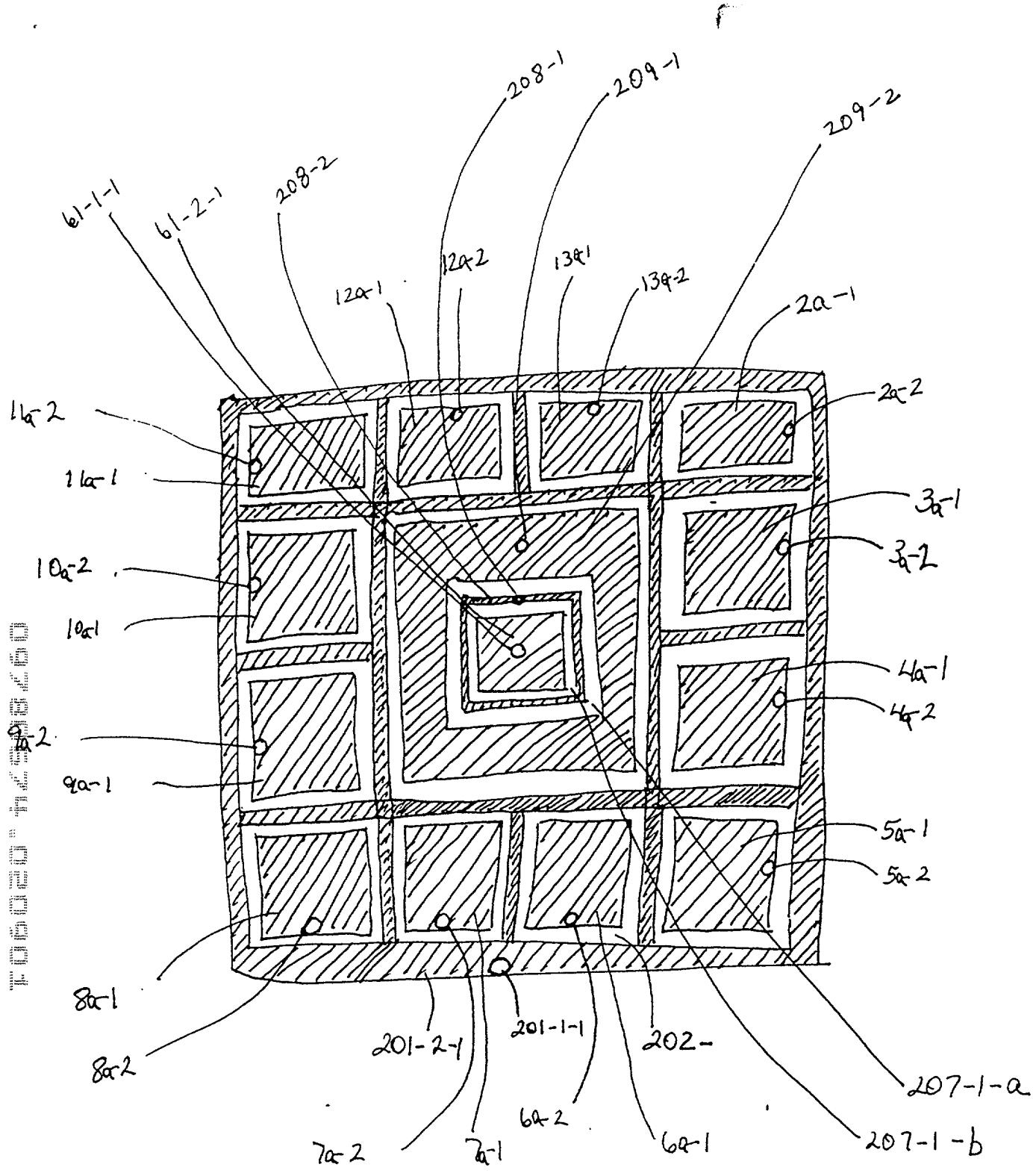


FIG. 21a

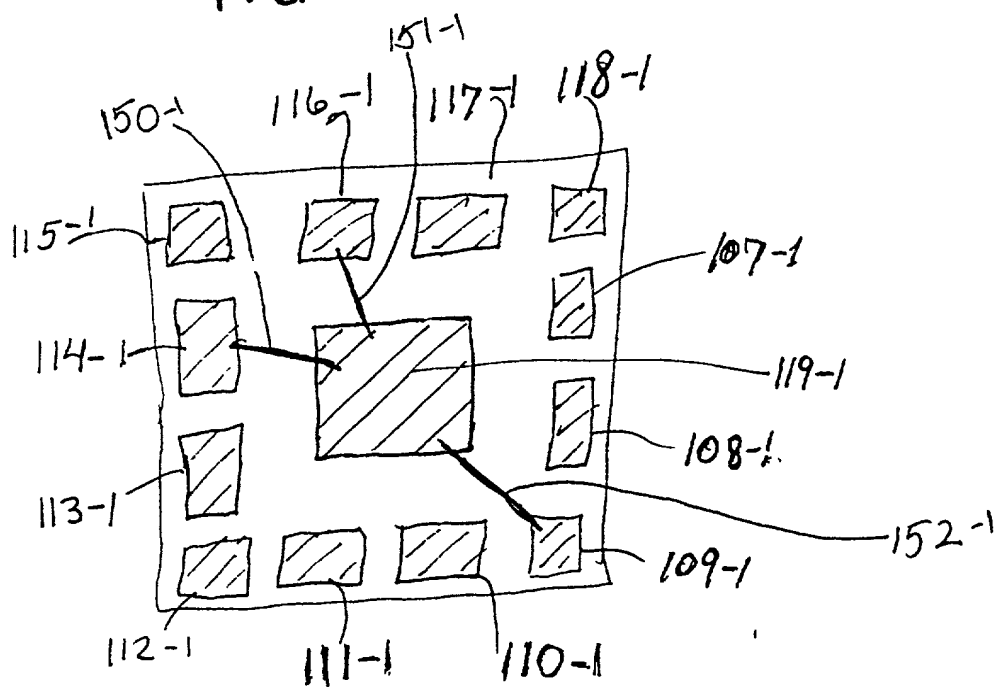
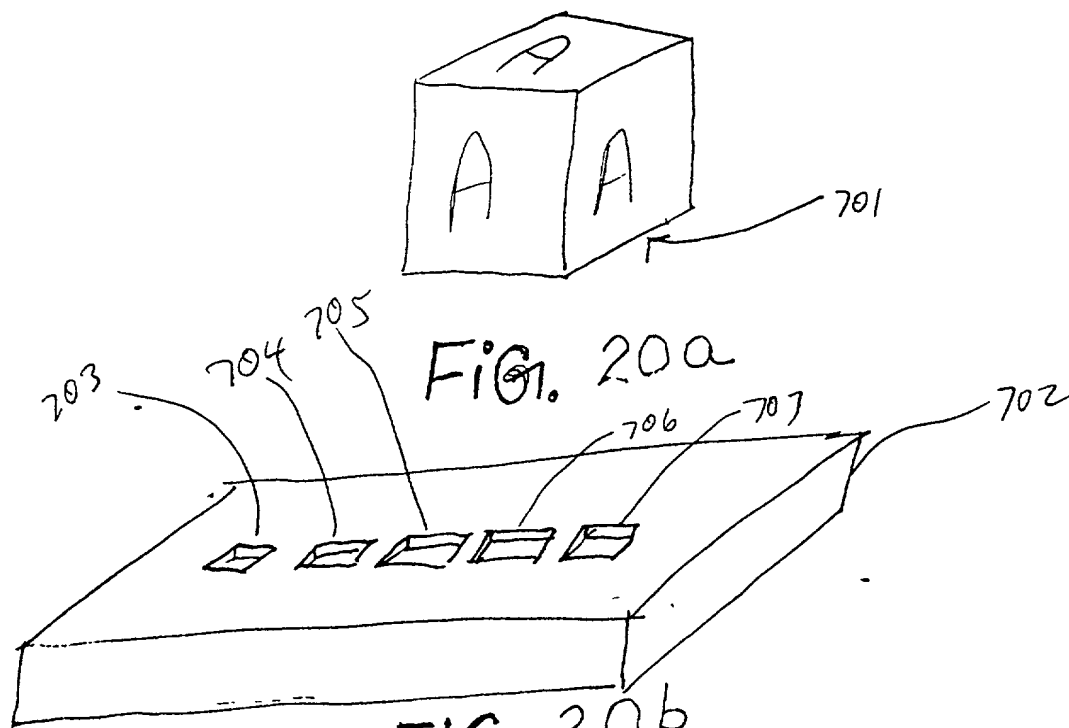


FIG. 20c

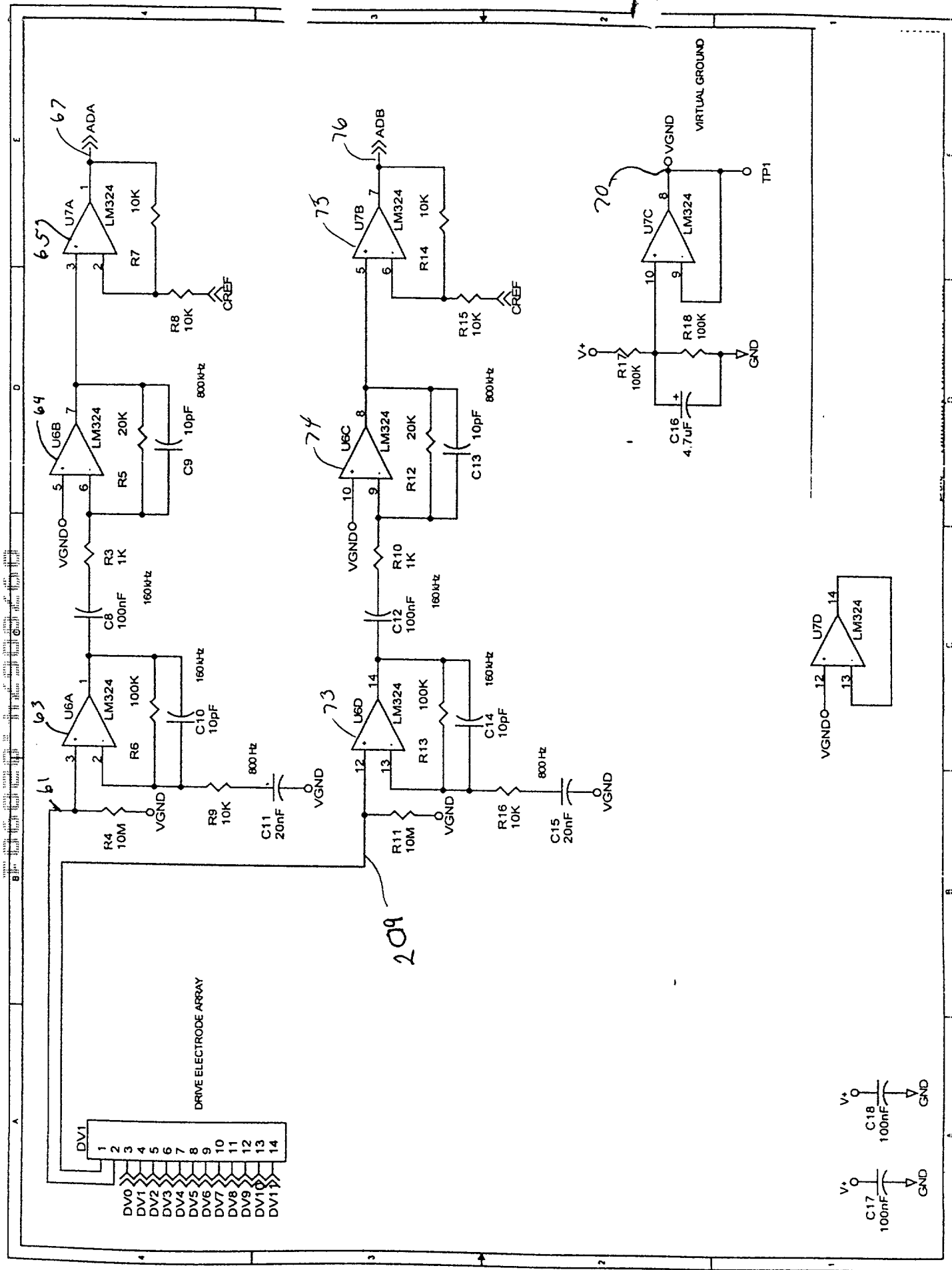


FIG 21b

APPENDIX D

105000 4303450


```
/aDict LetterObj subclass dup begin
  /isvowel { true } def
  /snorm "31" def
  /sounds [
    "31"
    wavname
    readwav not { "readwav error" logstring } if
    dup buildwav not { "buildwav error" logstring } if
    "style1_a"
    wavname
    readwav not { "readwav error" logstring } if
    dup buildwav not { "buildwav error" logstring } if
  ] def
end
def
```



```

        dup buildwav not { "buildwav error" logstring } if
        "style1_d"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
    ] def
end

def
/eDict LetterObj subclass dup begin
    /isyowel { true } def
    /snorm "32" def
    /sounds [
        "32"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
        "style1_e"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
    ] def
end

def
/fDict LetterObj subclass dup begin
    /isvowel { false } def
    /snorm "3" def
    /sounds [
        "3"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
        "style1_f"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
    ] def
end

def
/gDict LetterObj subclass dup begin
    /isvowel { false } def
    /snorm "4" def
    /sounds [
        "4"
        wavname
        readwav not { "file error" logstring } if

```

```

        dup buildwav not { "buildwav error" logstring } if
        "style1_g"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
    ] def
end

def
/hDict LetterObj subclass dup begin
    /isvowel { false } def
    /snorm "5" def
    /sounds [
        "5"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
        "style1_h"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
    ] def
end

def
/iDict LetterObj subclass dup begin
    /isvowel { true } def
    /snorm "33" def
    /sounds [
        "33"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
        "style2_i"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
    ] def
end

def
/jDict LetterObj subclass dup begin
    /isvowel { false } def
    /snorm "6" def
    /sounds [
        "6"
        wavname
        readwav not { "file error" logstring } if

```



```

        dup buildwav not { "buildwav error" logstring } if
        "style2_m"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
    ] def
end

def
/nDict LetterObj subclass dup begin
    /isvowel { false } def
    /snorm "10" def
    /sounds [
        "10"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
        "style2_n"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
    ] def
end

def
/oDict LetterObj subclass dup begin
    /isvowel { true } def
    /snorm "34" def
    /sounds [
        "34"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
        "style3_o"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
    ] def
end

def
/pDict LetterObj subclass dup begin
    /isvowel { false } def
    /snorm "11" def
    /sounds [
        "11"
        wavname
        readwav not { "file error" logstring } if

```

```

        dup buildwav not { "buildwav error" logstring } if
        "style3_p"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
    ] def
end

def
/qDict LetterObj subclass dup begin
    /isvowel { false } def
    /snorm "46" def
    /sounds [
        "46"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
        "style3_q"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
    ] def
end

def
/rDict LetterObj subclass dup begin
    /isvowel { false } def
    /snorm "12" def
    /sounds [
        "12"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
        "style3_r"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
    ] def
end

def
/sDict LetterObj subclass dup begin
    /isvowel { false } def
    /snorm "13" def
    /sounds [
        "13"
        wavname
        readwav not { "file error" logstring } if

```

```

        dup buildwav not { "buildwav error" logstring } if
        "style3_s"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
    ] def
end

```

```

def
/tDict LetterObj subclass dup begin
    /isvowel { false } def
    /snorm "14" def
    /sounds [
        "14"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
        "style3_t"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
    ] def
end

```

```

def
/uDict LetterObj subclass dup begin
    /isvowel { true } def
    /snorm "35" def
    /sounds [
        "35"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
        "style4_u"
        wavname
        readwav not { "file error" logstring } if
        dup buildwav not { "buildwav error" logstring } if
    ] def
end

```

```

def
/vDict LetterObj subclass dup begin
    /isvowel { false } def
    /snorm "15" def
    /sounds [
        "15"
        wavname
        readwav not { "file error" logstring } if
    ]
end

```